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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/713,219

11/17/2003

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01/05/2007

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EXAMINER

SCHILLINGER, LAURA M

ART UNIT

PAPER NUMBER

2813

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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3 MONTHS

01/05/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/713,219

Applicant(s)

MAEKAWA ET AL.

Examiner

Laura M. Schillinger

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,18,20,27,29,36 and 38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,18,20,27,29,36 and 38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 18, 20, 27, 29, 36, 38 are rejected under 35 U.S.C. 102(e) as being anticipated by Ichijo et al (6821828).

Ichijo teaches the following claimed limitations as cited below:

1. A method for fabricating a thin film transistor, comprising:
forming a first amorphous semiconductor film (Col.8, lines: 55-65);
forming a material including a metal element to promote crystallization over the first amorphous semiconductor film (Col.9, lines: 15-35);
heating the first amorphous semiconductor film to form a first crystalline semiconductor film (Col.9, lines: 35-65);
forming a second amorphous semiconductor film by sputtering over the first crystalline semiconductor film (Col.10, lines: 50-55; Col.8, lines: 65);

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heating the first crystalline semiconductor film and the second amorphous semiconductor film (Col.11, lines: 10-30);

removing the second amorphous semiconductor film (Col.12, lines: 5-10) and

wherein the second semiconductor film serves as a gettering sink (Col.10, lines: 50-55)

wherein the second amorphous semiconductor film contains nitrogen at a concentration of 1×10^{18} atoms/cm or lower (Col.16, lines: 35), oxygen concentration is 8×10^{19} or lower (Col.16, line:35-37), and a noble gas concentration is 1×10^{20} atoms/cm³ or higher (Col.10, line:65).

3. A method for fabricating a thin film transistor, comprising:

forming a first amorphous semiconductor film (Col.13,lines:25-30);

forming a material including a metal element to promote crystallization over the first amorphous semiconductor film (Col.13,lines: 40-50);

forming a second amorphous semiconductor film by sputtering over the first amorphous semiconductor film (Col.13, lines: 25-30; Col.8, liens: 65);

heating the first amorphous semiconductor film and the second amorphous semiconductor film (Col.14, lines: 1-5 and Col.11, lines: 10-30);

removing the second amorphous semiconductor film (Col.12, lines: 5-10) and

wherein the second semiconductor film serves as a gettering sink (Col.10, lines: 50-55)

wherein the second amorphous semiconductor film contains nitrogen at a concentration of 1×10^{18} atoms/cm or lower (Col.16, lines: 35), oxygen concentration is 8×10^{19} or lower (Col.16, line:35-37), and a noble gas concentration is 1×10^{20} atoms/cm³ or higher (Col.10, line:65).

18. A method for fabricating a thin film transistor according to claim 1, wherein the second amorphous semiconductor film is removed by dry etching using hydrazine or tetramethyl ammonium hydroxide (Col.12, lines: 10-20).

20. A method for fabricating a thin film transistor according to claim 3, wherein the second amorphous semiconductor film is removed by dry etching using hydrazine or tetramethyl ammonium hydroxide (Col.12, lines: 10-20).

27. A method for fabricating a thin film transistor according to claim 1, wherein the noble gas element is one element or more elements selected from a group' consisting of helium (He), neon (Ne), argon (Ar), krypton (Kr), and xenon (Xe) (Col.10, lines: 55-60).

29. A method for fabricating a thin film transistor according to claim 3, wherein the noble gas element is one element or more elements selected from a group' consisting of helium (He), neon (Ne), argon (Ar), krypton (Kr), and xenon (Xe) (Col.10, lines: 55-60).

36. A method for fabricating a thin film transistor according to claim 1, wherein the metal element is one element or more elements selected from a group consisting of iron (Fe), nickel (Ni), cobalt (Co), ruthenium (Ru), rhodium (Rh), palladium (Pd), osmium (Os), iridium (Ir), platinum (Pt), copper (Cu), and gold (Au) (Col.9, lines: 20-25).

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38. A method for fabricating a thin film transistor according to claim 3, wherein the metal element is one element or more elements selected from a group consisting of iron (Fe), nickel (Ni), cobalt (Co), ruthenium (Ru), rhodium (Rh), palladium (Pd), osmium (Os), iridium (Ir), platinum (Pt), copper (Cu), and gold (Au) (Col.9, lines: 20-25).

Response to Arguments

Applicant's arguments filed 10/13/06 have been fully considered but they are not persuasive. Applicant argues that Ichijo teaches to form the first semiconductor film by sputtering, not the second. This is not persuasive because Applicant takes the Ichijo teaching out of context. Ichijo states, "Typically an amorphous semiconductor film,...is applied and formed at a thickness of 10nm to 100nm by plasma CVD method, a low pressure CVD method, or a sputtering method." Ichijo is teaching that ANY amorphous semiconductor film may be deposited by any of these methods. Therefore, it constitutes a teaching that the second amorphous semiconductor film may be made by sputtering.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

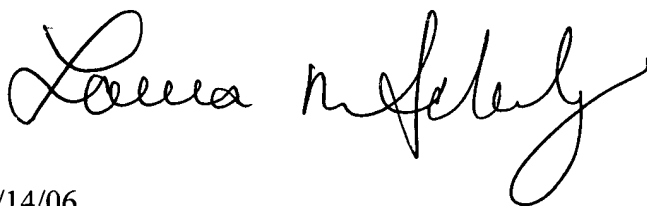
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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M. Schillinger whose telephone number is (571) 272-1697. The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W. Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Laura M Schillinger
Primary Examiner
Art Unit 2813

12/14/06